## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

| In re Application of:   | )   |
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| Robert DOBLHOFER et al.   | )<br>)  |
| Application No.: <b>10/584,996</b> Filed: <b>June 29, 2006</b>  | <ul><li>Group Art Unit: Not Yet Assigned</li><li>Examiner: Not Yet Assigned</li></ul> |
| For: 4-AMINO-7,8-DIHYDROPTERIDINES, PHARMACEUTICAL COMPOSITIONS CONTAINING THEM AND THEIR USE FOR THE TREATMENT OF DISEASES WHICH ARE CAUSED BY AN INCREASED NITRIC OXIDE LEVEL | ) ) ) ) ) ) ) )   |

Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Sir:

## INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. § 1.97(b)

Pursuant to 37 C.F.R. §§1.56 and 1.97(b), applicants bring to the Examiner's attention the documents listed on attached Form PTO/SB/08 and cited in the international search report. With exception of the U.S. patent, copies of the listed documents are attached. Applicants respectfully request that the Examiner consider the documents listed on attached Form PTO/SB/08 and indicate that they were considered by making an appropriate notation on this form. This Information Disclosure Statement is being filed before the mailing date of a first Office Action on the merits for the above-referenced application.

The following are listed on the accompanying PTO/SB/08 and are in a non-English language:

- 1. WO 95/32203 An English language abstract of this document is enclosed.
  - 2. DE 44 18 097
  - 3. EP 0 906 913 A1
- 4. WO 01/21619 A1 An English language abstract of this document is enclosed.
- 5. PFLEIDERER, W. et al., "A Simple Synthetic Approach to 8-Substituted 5,6,7,8-Tetrathyro- and 7,8-Dihydropterins," Chem. Ber., Vol. 104, pp. 2293-2312, (1971) An English-language translation of the document is enclosed.
- 6. SCHIRCKS, V. B. et al., "A New, Regiospecific Synthesis of L-Biopterine," Helvetica Chimica Acta, Vol. 60, No. 1, pp. 211-214, (1977) An English-language abstract of the document is enclosed..

In lieu of a statement of relevance or the translation of the non-English documents 2 and 3, enclosed is an English-language international search report from the Patent Office in the PCT international application, from which this national phase U.S. application is derived, citing these documents and setting forth the relevance thereof.

This submission does not represent that a search has been made or that no better art exists and does not constitute an admission that each or all of the listed documents are material or constitute "prior art." If the Examiner applies any of the documents as prior art against any claim in the application and applicants determine

Customer No. 22,852 Attorney Docket No. **05281.0018** 

that the cited documents do not constitute "prior art" under United States law, applicants reserve the right to present to the Office the relevant facts and law regarding the appropriate status of such documents. Applicants further reserve the right to take appropriate action to establish the patentability of the disclosed invention over the listed documents, should one or more of the documents be applied against the claims of the present application.

If there is any fee due in connection with the filing of this Statement, please charge the fee to our Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER, L.L.P.

Dated: June 11, 2007

Ernest F. Chapman Reg. No. 25,961

Enclosures EFC/FPD/sci

| IDS Form PTO/SB/08 | Substitute for form | 1449A/PTO |
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## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

| Sheet  | 1 | of    |  |
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| Complete if Known      |                         |  |  |
|------------------------|-------------------------|--|--|
| Application Number     | 10/584,996              |  |  |
| Filing Date            | June 29, 2006           |  |  |
| First Named Inventor   | Robert DOBLHOFER et al. |  |  |
| Art Unit               |                         |  |  |
| Examiner Name          |                         |  |  |
| Attorney Docket Number | 05281.0018              |  |  |

|          | U.S. PATENTS AND PUBLISHED U.S. PATENT APPLICATIONS |  |                                |                             |  |
|----------|---|--|--------------------------------|-----------------------------|--|
| Examiner | Cite  | Document Number                          | Issue or                       | Name of Patentee or         | Pages, Columns, Lines, Where                 |
| Initials | No.¹  | Number-Kind Code <sup>2</sup> (if known) | Publication Date<br>MM-DD-YYYY | Applicant of Cited Document | Relevant Passages or Relevant Figures Appear |
|          |   | US-5,922,713                             | 07-13-1999                     | WERNER                      |  |
|          |   |  |                                |                             |  |

Note: Copies of the U.S. Patent Documents are not Required in IDS filed after October 21, 2004

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| FOREIGN PATENT DOCUMENTS |                          |   |                                |  |  |                          |  |
|--------------------------|--------------------------|---|--------------------------------|--|--|--------------------------|--|
| Examiner<br>Initials     | Cite<br>No. <sup>1</sup> | Foreign Patent Document  Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> ( <i>if known</i> ) | Publication Date<br>MM-DD-YYYY | Name of Patentee or<br>Applicant of Cited Document | Pages, Columns, Lines,<br>Where Relevant<br>Passages or Relevant<br>Figures Appear | Translation <sup>6</sup> |  |
|                          |                          | WO 95/32203   | 11-30-1995                     | PFLEIDERER et al.                                  |  | Abstract                 |  |
|                          | •                        | DE 44 18 097 A1   | 11-30-1995                     | PFLEIDERER et al.                                  |  | NO                       |  |
|                          |                          | EP 0 906 913 A1   | 04-07-1999                     | WERNER et al.                                      |  | NO                       |  |
|                          |                          | WO 01/21619 A1  | 03-29-2001                     | PFLEIDERER et al.                                  |  | Abstract                 |  |
|                          |                          | WO 00/39129   | 07-06-2000                     | WAER et al.  |  |                          |  |
|                          |                          | GB 2 240 041 A1   | 07-24-1991                     | BRAQUET et al.                                     |  |                          |  |
|                          |                          | WO 93/13055   | 07-08-1993                     | BEAMS et al.                                       |  |                          |  |

|                      | _            | NON PATENT LITERATURE DOCUMENTS   |                          |
|----------------------|--------------|---|--------------------------|
| Examiner<br>Initials | Cite<br>No.¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | Translation <sup>6</sup> |
|                      |              | McCALL, T. B. et al., "Identification of N-Iminoethyl-L-Ornithine as an Irreversible Inhibitor of Nitric Oxide Synthase in Phagocyctic Cells," Br. J. Pharmacol., Vol. 102, No. 1. p. 234, (1991). (Abstract Only)  |                          |
|                      |              | MISKO, T. P. et al., "Selective Inhibition of the Inducible Nitric Oxide Synthase by Aminoguanidine," Eur. J. Pharmacol., Vol. 233, No. 1, p. 119, (1993). (Abstract Only)  |                          |
|                      |              | MOORE, P. K. et al., "7-Nitro Indazole, an Inhibitor of Nitric Oxide Synthase, Exhibits Anti-Nociceptive Activity in the Mouse Without Increasing Blood Pressure," Br. J. Pharmacol., Vol. 108, No. 2, p. 296, (1993). (Abstract Only)                          |                          |
|                      |              | KWON, N. S. et al., "Reduced Biopterin as a Cofactor in the Generation of Nitrogen Oxides by Murine<br>Macrophages," The Journal of Biological Chemistry, Vol. 264, No. 34, pp. 20496-20501, (1989).  |                          |
|                      |              | GIOVANELLI, J. et al., "Tetrhydrobiopterin, a Cofactor for Rat Cerebellar Nitric Does Not Function as a Reactant in the Oxygenation of Arg," Proc. Natl. Acad. Sci., Vol. 88, No. 16, p. 7091, (1991). (Abstract Only)  |                          |
|                      |              | MÜLSCH, A. et al., "Nitric Oxide Synthase in Native and Cultured Endothelial Cells: Calcium/Calmodulin and Tetrhdrobiopterin Are Cofactors," Journal of Cardiovascular Pharmacology, Vol. 17, Suppl. 3, pp. S52-S56, (1991).                                    |                          |
|                      |              | SAKAI, N. et al., "Tetrahydrobiopterin is Required for Cytokine-Induced Nitric Oxide Production in a Murine Macrophage Cell Line (RAW 264)," Mol. Pharmacol., Vol. 43, Issue 1, p. 6, (1993). (Abstract Only)   |                          |
|                      |              | KLATT, P. et al., "Stimulation of Human Nitric Oxide Synthase by Tetrahydrobiopterin and Selective Binding of the Cofactor," FEBS Letters, Vol. 305, No. 2, pp. 160-162, (1992).  |                          |
|                      |              | WERNER-FELMAYER, G. et al., "Ca <sup>2+</sup> /Calmodulin-Dependent Nitric Oxide Synthase Activity in the Human Cervix Carcinoma Cell Line ME-180," Biochem. J., Vol. 289, pp. 357-361, (1993).   |                          |
|                      |              | HEVEL, J. M. et al., "Macrophage Nitric Oxide Synthase: Relationship Between Enzyme-Bound Tetrahydrobiopterin and Synthase Activity," Biochemistry, Vol. 31, pp. 7160-7165, (1992).   | ,                        |
| :                    |              | PFEIFFER, S. et al., "Allosteric Modulation of Rat Brain Nitric Oxide Synthase by the Pterin-Site Enzyme Inhibitor 4-Aminotetrahydrobiopterin," Biochem. J., Vol. 328, pp. 349-352, (1997).   |                          |
|                      |              | WERNER, E. R. et al., "Identification of the 4-Amino Analoque of Tetrahydrobiopterin as a Dihydropteridine Reductase Inhibitor and a Potent Pteridine Antagonist of Rat Neuronal Nitric Oxide Synthase," Biochem J., Vol. 320, pp. 193-196, (1996).             |                          |

| IDS Form PTO/SB/08: Substitute for form 1449A/PTO |                     |               |     | C                      | omplete if Known        |               |
|---|---------------------|---------------|-----|------------------------|-------------------------|---------------|
|   |                     |               |     | Application Number     | 10/584,996              |               |
| INF   | ORMATION D          | ISCLOSU       | RE  | Filing Date            | June 29, 2006           |               |
| STATEMENT BY APPLICANT                            |                     |               |     | First Named Inventor   | Robert DOBLHOFER et al. |               |
| 317   | VI EINIEINI DI      | AFFLIOA       | 141 | Art Unit               |                         |               |
|   | (Use as many sheets | as necessary) |     | Examiner Name          |                         | <del></del> * |
| Sheet   | 2                   | of            | 2   | Attorney Docket Number | 05281.0018              |               |

|                      |              | NON PATENT LITERATURE DOCUMENTS   |             |
|----------------------|--------------|---|-------------|
| Examiner<br>Initials | Cite<br>No.1 | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.   | Translation |
|                      |              | SCHIRCKS, V. B. et al., "A New, Regiospecific Synthesis of L-Biopterine," Helvetica Chimica Acta, Vol. 60, No. 1, pp. 211-214, (1977).  | Abstract    |
|                      |              | FUTTERMAN, S., "Enzymatic Reduction of Folic Acid and Dihydrofolic Acid to Tetrahydro-Folic Acid," J. Biol. Chem., Vol. 228, pp. 1031-1038, (1957). (Abstract Only)   |             |
|                      |              | FUKUSHIMA, T. et al., "Nuclear Magnetic Resonance Studies of Some Biologically Active Dihydropterins," Vol. 128, Issue 1, 1 page, (1968).   |             |
|                      |              | PFLEIDERER, W. et al., "A Simple Synthetic Approach to 8-Substituted 5,6,7,8-Tetrathyro- and 7,8-Dihydropterins," Chem. Ber., Vol. 104, pp. 2293-2312, (1971).  | YES         |
|                      |              | ANDREWS, K. J. M. et al., "A New Synthesis of Biopterin and L-Neopterin," Chemical Communications, pp. 120-121, (1968).   |             |
|                      |              | HANAYA, T. et al., "Pteridines CV Selective N(3)-and O <sup>4</sup> -Alkylation of L-Biopterin: A Convenient Synthesis of 3-and O <sup>4</sup> -Methyl-L-Biopterin and the Versatile N <sup>2</sup> -(N,N-Dimethylaminomethylene)-N(3)-p-Nitrophenethyl-Protected L-Biopterin," Pteridines, Vol. 6, No. 1, pp. 1-7, (1995). |             |
|                      |              | MATTER, H. et al., "Structural Requirements for Inhibition of the Neuronal Nitric Oxide synthase (NOS-I): 3D-QSAR Analysis of 4-Oxo-and 4-Amino-Pteridine-Based Inhibitors," J. Med. Chem., Vol. 45, No. 14, pp. 2923-2941, (2002).   |             |
| ı                    |              | KNIPP, M. et al., "A Colorimetric 96-Well Microtiter Plate Assay for the Determination of Enzymatically Formed Citrulline," Anal Biochem., Vol. 286, No. 2, pp. 257-64, (2000). (Abstract Only)   |             |
|                      |              | TAYLOR, E. C. et al., "Pteridines. XXIX. An Unequivocal Route to 2,4-Diamino-6-Substituted Pteridines,"  Journal of the American Chemical Society, Vol. 95, No. 19, pp. 6413-6418, (1973).  |             |
|                      |              | KWEE, S. et al., "Electrochemistry of Some Substituted Pteridines," Biochimica et Biophysica Acta, Vol. 297, No. 2, p 285-296, (1973). (Abstract Only)  |             |
|                      |              | ZIMMERMAN, M. et al., "Inhibitors of Folate Biosynthesis. 1. Inhibition of Dihydroneopterin Aldolase by Pteridine Derivatives," Journal of Medicinal Chemistry, Vol. 20, No. 9, pp. 1213-1215, (1977). (Abstract Only)  |             |
|                      |              | AL-HASSAN et al., "2,4-Diamino-7,8-dihydro-6,7,7-trimethylpteridine;" J. Chem. Soc. Perkin Trans 1, pp. 2145-2150, (1985).  |             |
|                      |              | AL-HASSAN et al., "2,4-Diamino-8-benzyl-7,8-dihydro-6,7,7-trimethylpteridine," J. Chem. Soc. Perkin Trans 1, pp. 2145-2150, (1985).   |             |
|                      |              | Chaykovsky et al., "6-methyl-7,8-dihydro-pteridine-2,4-diamine," J. Org. Chem., Vol. 40, p. 145, (145).   |             |

| Examiner  | Date       |  |
|-----------|------------|--|
| Signature | Considered |  |

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.